

LISTING OF CLAIMS:

1. (Withdrawn) A method of manufacturing an inkjet head comprising the steps of:

forming a plurality of recesses in a row arrangement on at least one lower substrate;

forming a plurality of terminal portions on the at least one lower substrate, each terminal portion corresponding to a respective one of the recesses;

forming a plurality of nozzles and a through-hole in an upper substrate, which is bonded to the at least one lower substrate, so that each nozzle communicates with a respective one of the recesses and the through-hole exposes the terminal portions; and

etching first fine grooves for the nozzles up to a predetermined depth and a second groove for the through-hole on one side of the upper substrate; and

thereafter etching third grooves larger than the first grooves on the opposite side of the upper substrate and simultaneously forming the nozzles and the through-hole by having the third grooves penetrating the bottom of the first grooves and the second groove.

2. (Withdrawn) A method of manufacturing an inkjet head according to claim 1, wherein the second groove is a ring groove defining the contour of the outer periphery of the through-hole.

3. (Withdrawn) A method of manufacturing an inkjet head according to claim 1, wherein the upper substrate is a silicon substrate, and further comprising forming the first grooves and the second groove by dry-etching.

4. (Withdrawn) A method of manufacturing an inkjet head according to claim 3, further comprising: using a resist film as a mask for the dry-etching, the resist film comprising a silicon-oxide-film; exposing the surface of the silicon substrate by etching the silicon-oxide-film; and applying dry-etching to the exposed portion.

5. - 9. (Cancelled)

10. (Currently Amended) An ejection device comprising:

a nozzle plate comprising a silicon substrate having a first surface and a second surface;

a plurality of first nozzle portions each having a circular cross-section, each of the first nozzle portions formed in the silicon substrate;

a plurality of second nozzle portions each having a circular cross-section, each of the second nozzle portions formed on the second surface of the silicon substrate, and communicating with a corresponding first nozzle portion, the circular cross-section of each of the first nozzle portions being smaller than the circular cross-section of each of the second nozzle portions, the first and second nozzle portions forming nozzles each having a cross-section smaller stepwise from a rear end toward a front end of each nozzle; and

a recess formed on the first surface of the silicon substrate, the recess having a flat bottom surface commonly communicating with the plurality of first nozzle portions such that the front end of each of the nozzles is exposed to the recess; and

wherein the plurality of first and second nozzle portions are formed by applying dry-etching by plasma discharge to the second surface of the silicon substrate, and the recess is formed by applying wet-anisotropic-etching to the first surface of the silicon substrate.

11. (Cancelled)

12. (Currently Amended) An ejection device according to claim ~~11~~10, wherein the plurality of first and second nozzle portions are formed by patterning a stepwise exposed portion on a resist film formed on the second surface of the silicon substrate and applying dry-etching by plasma discharge to the stepwise exposed portion.

13. - 17. (Cancelled)

18. (Currently Amended) An inkjet head comprising:

a nozzle plate comprising a silicon substrate having a first surface and a second surface;

a plurality of first nozzle portions each having a circular cross-section, each of the first nozzle portions formed in the silicon substrate;

a plurality of second nozzle portions each having a circular cross-section, each of the second nozzle portions formed on the second surface of the silicon substrate, and communicating with a corresponding first nozzle portion, the circular cross-section of each of the first nozzle portions being smaller than the circular cross-section of each of the second nozzle portions, the first and second nozzle portions forming nozzles each having a cross-section smaller stepwise from a rear end toward a front end of each nozzle;

a recess formed on the first surface of the silicon substrate, the recess having a flat bottom surface commonly communicating with the plurality of first nozzle portions such that the front end of each of the nozzles is exposed to the recess; and

a second substrate including ink passages, the second substrate being bonded to the second surface of the silicon substrate such that each ink passage communicates with a rear end of a corresponding one of the nozzles; and

wherein the first nozzle portions and the second nozzle portions are formed by applying dry-etching by plasma discharge to the second surface of the silicon substrate, and the recess is formed by applying wet-anisotropic-etching to the first surface of the silicon substrate.

19. (Cancelled)

20. (Currently Amended) An inkjet head according to claim ~~19~~18, wherein the first and second nozzle portions are formed by patterning a stepwise exposed portion on a resist film formed on the second surface of the silicon substrate and applying dry-etching by plasma discharge to the stepwise exposed portion.

21. (Currently Amended) An inkjet head according to claim 18, further comprising;

a plurality of pressure generators each corresponding to an ink passage;

a plurality of terminal portions that each supply a control signal to a corresponding pressure generator; and

a through-hole formed ~~en~~in the silicon substrate that exposes the terminal portions.